

Lab 7 - Advanced Voice Translations

CCNA Voice Lab 7

Advanced Voice Translations

Lab Objective:

The objective of this lab exercise is for you to learn and understand how to implement advanced voice translation profiles on Cisco IOS gateways

Topic Description:

Voice translation profiles contain voice translation rules, which allow administrators to manipulate not only the DNIS, but the ANI and redirecting number. Translation profiles can also be used to adjust the numbering type and plan, reject unwanted calls as well as remove specific digits in a number, such as hyphens, for example

Lab Difficulty:

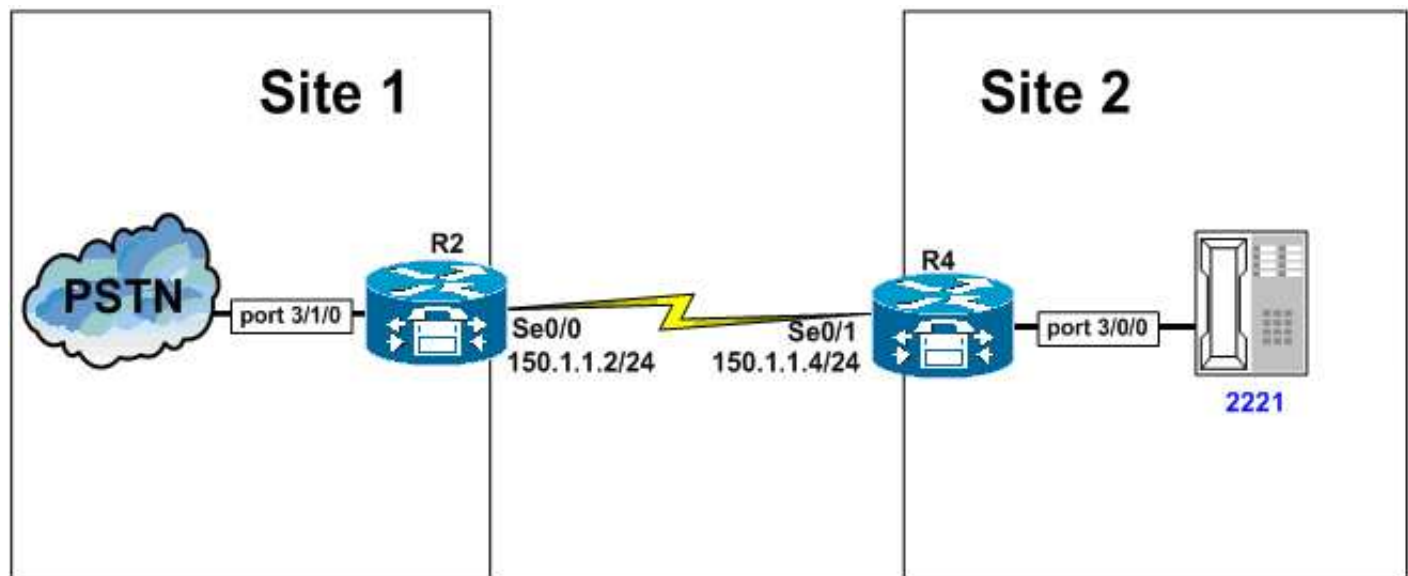
This lab has a difficulty rating of 8/10

Readiness Assessment:

When ready for your exam, you should be able to complete this lab in no more than 15 minutes

Lab Topology:

Please use the following topology to complete this lab exercise:



Lab 7 Configuration Tasks

Task 1:

Configure the hostnames and IP addresses on R2 and R4 as illustrated in the diagram. Configure R4 to provide clocking to R2. Configure the clock rate on R4 as 800Kbps

Task 2:

Configure a POTS dial peer on R4 for the extension specified in the diagram. You are permitted to use any dial peer number that you want to use

Task 3:

Configure three POTS dial peer on R2 for PSTN access. The destination patterns on the dial peers should allow the following:

Only calls to number 1-800-555-1111

Only calls to number 1-800-555-2222

International calls that begin with 011 followed by any number of digits

The access code 9 is not required. Use any dial peer numbers that you want

Task 4:

Configure a VoIP dial peer on R2 for the extension on R4. You are permitted to use any dial peer number that you want to use

Task 5:

Configure a VoIP dial peer on R4 to send all digits to R2. Use the simplest destination pattern. You can use any dial peer number that you want to use

Task 6:

Configure a voice translation rule on R4 so that outbound VoIP calls are translated as follows:

All local calls, i.e. calls that begin with digits 2 through 9, followed by 9 digits, e.g. 678-555-1111, should be translated to the number 1-800-555-1111. The numbering plan should be changed from unknown to national for these calls

All long distance calls, i.e. calls that begin with the number 1, followed by 10 additional digits, e.g. 1-678-555-1111, should be translated to the number 1-800-555-2222. The numbering plan should be changed from unknown to ISDN for these calls

All international calls, i.e. calls that begin with digits 011, followed by any number of digits, e.g. 011-44-123-456-7890, should only have the numbering type should be changed from unknown to international. The called number should remain the same

All other numbers should be rejected or blocked

Create a voice translation profile named **PSTN-Translation** and apply the translation profile to outgoing calls on the VoIP dial peer on R4

Task 7:

Verify your configuration using the appropriate Cisco IOS **show** and **debug** commands

Lab 7 Configuration and Verification

Task 1:

```
R2(config)#hostname R2
R2(config)#interface Serial0/0
R2(config-if)#description .Connected To R4 Serial 0/1.
R2(config-if)#ip address 150.1.1.2 255.255.255.0
```

```
R4(config)#hostname R4
R4(config)#interface Serial0/1
R4(config-if)#description .Connected To R2 Serial 0/0
R4(config-if)#ip address 150.1.1.4 255.255.255.0
R4(config-if)#clock rate 800000
```

Verify connectivity by performing a simple ping between the two routers

```
R2#ping 150.1.1.4
```

Type escape sequence to abort.

Sending 5, 100-byte ICMP Echos to 150.1.1.4, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms

R4#ping 150.1.1.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 150.1.1.2, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/8 ms

Task 2:

```
R4(config)#dial-peer voice 1 pots
R4(config-dial-peer)#destination-pattern 2221
R4(config-dial-peer)#port 3/0/0
R4(config-dial-peer)#exit
```

Task 3:

```
R2(config)#dial-peer voice 1 pots
R2(config-dial-peer)#destination-pattern 18005551111
R2(config-dial-peer)#port 3/1/0
R2(config-dial-peer)#exit
R2(config)#dial-peer voice 2 pots
R2(config-dial-peer)#destination-pattern 18005552222
R2(config-dial-peer)#port 3/1/0
R2(config-dial-peer)#exit
R2(config)#dial-peer voice 3 pots
R2(config-dial-peer)#destination-pattern 011T
R2(config-dial-peer)#port 3/1/0
R2(config-dial-peer)#prefix 011
R2(config-dial-peer)#exit
```

Task 4:

```
R2(config)#dial-peer voice 4 voip
R2(config-dial-peer)#destination-pattern 2221
R2(config-dial-peer)#session target ipv4:150.1.1.4
R2(config-dial-peer)#exit
```

Task 5:

```
R4(config)#dial-peer voice 2 voip
R4(config-dial-peer)#destination-pattern .T
R4(config-dial-peer)#session target ipv4:150.1.1.2
R4(config-dial-peer)#exit
```

Task 6:

```
R4(config)#voice translation-rule 1
R4(cfg-translation-rule)#rule 1 /^[2-9].....$/ /18005551111/ plan unknown national
R4(cfg-translation-rule)#rule 2 /^1.....$/ /18005552222/ plan unknown isdn
R4(cfg-translation-rule)#rule 3 /^011.+ /&/ type unknown international
R4(cfg-translation-rule)#rule 4 reject /.*/
R4(cfg-translation-rule)#exit
R4(config)#voice translation-profile PSTN-Translation
R4(cfg-translation-profile)#translate called 1
R4(cfg-translation-profile)#exit
R4(config)#dial-peer voice 2 voip
R4(config-dial-peer)#translation-profile outgoing PSTN-Translation
R4(config-dial-peer)#exit
```

NOTE: This is simply one of many different ways this task can be accomplished

Task 7:

Verify the correct translation operation for local calls on R4:

R4#**debug voice translation**

VoIP Translation Rule debugging is enabled

R4#

R4#**test voice translation-rule 1 6785551111 plan unknown**

Matched with rule 1

Original number: 6785551111 Translated number: 18005551111

Original number type: none Translated number type: none

Original number plan: unknown Translated number plan: national

***Mar 1 06:18:18.535: //-1/xxxxxxxxxxxx/RXRULE/sed_subst: Successful substitution; pattern=6785551111 matchPattern=^[2-9].....\$ replacePattern=18005551111 replaced pattern=18005551111**

*Mar 1 06:18:18.535: //-1/xxxxxxxxxxxx/RXRULE/regxrule_subst_num_type: Match Type = none, Replace Type = none Input Type = none

***Mar 1 06:18:18.535: //-1/xxxxxxxxxxxx/RXRULE/regxrule_subst_num_plan: Match Plan = unknown, Replace Plan = national Input Plan = unknown**

Verify the correct translation operation for long distance calls on R4:

R4#**test voice translation-rule 1 19725551111 plan unknown**

Matched with rule 2

Original number: 19725551111 Translated number: 18005552222

Original number type: none Translated number type: none

Original number plan: unknown Translated number plan: isdn

***Mar 1 06:20:37.911: //-1/xxxxxxxxxxxx/RXRULE/sed_subst: Successful substitution; pattern=19725551111 matchPattern=^1.....\$ replacePattern=18005552222 replaced pattern=18005552222**

*Mar 1 06:20:37.911: //-1/xxxxxxxxxxxx/RXRULE/regxrule_subst_num_type: Match Type = none, Replace Type = none Input Type = none

***Mar 1 06:20:37.911: //-1/xxxxxxxxxxxx/RXRULE/regxrule_subst_num_plan: Match Plan = unknown, Replace Plan = isdn Input Plan = unknown**

Verify the correct translation operation for international calls on R4:

R4#**debug voice translation**

VoIP Translation Rule debugging is enabled

R4#

R4#**test voice translation-rule 1 011441234567890 type unknown**

Matched with rule 3

Original number: 011441234567890 Translated number: 011441234567890

Original number type: unknown Translated number type: international

Original number plan: none Translated number plan: none

***Mar 1 06:24:18.787: //-1/xxxxxxxxxxxx/RXRULE/sed_subst: Successful substitution; pattern=011441234567890 matchPattern=^011.+ replacePattern=& replaced pattern=011441234567890**

***Mar 1 06:24:18.791: //-1/xxxxxxxxxxxx/RXRULE/regxrule_subst_num_type: Match Type = unknown, Replace Type = international Input Type = unknown**

*Mar 1 06:24:18.791: //-1/xxxxxxxxxxxx/RXRULE/regxrule_subst_num_plan: Match Plan = none, Replace Plan = none Input Plan = none

Verify that all other non-conforming numbers are rejected or blocked:

R4#**debug voice translation**

VoIP Translation Rule debugging is enabled

R4#

R4#**test voice translation-rule 1 1112**

1112 blocked on rule 4

*Mar 1 06:25:42.343: //-1/xxxxxxxxxxxx/RXRULE/regxrule_match: Matched a call block rule; number=1112 rule precedence=4

R4#

R4#**test voice translation-rule 1 5551111**

5551111 blocked on rule 4

*Mar 1 06:26:07.211: //-1/xxxxxxxxxxxx/RXRULE/regxrule_match: Matched a call block rule;
number=5551111 rule precedence=4

Final Relevant Configuration R2:

R2#**show running-config**

Building configuration...

Current configuration : 1626 bytes

```
!  
version 12.4  
service timestamps debug datetime msec  
service timestamps log datetime msec  
no service password-encryption  
!  
hostname R2  
!  
!  
!  
interface Serial0/0  
  description .Connected To R4 Serial 0/1.  
  ip address 150.1.1.2 255.255.255.0  
!  
!  
!  
voice-port 3/0/0  
!  
voice-port 3/0/1  
!  
voice-port 3/1/0  
!  
voice-port 3/1/1  
!  
!  
!  
dial-peer voice 1 pots  
  destination-pattern 18005551111  
  port 3/1/0  
!  
dial-peer voice 2 pots  
  destination-pattern 18005552222  
  port 3/1/0  
!  
dial-peer voice 3 pots  
  destination-pattern 011T  
  port 3/1/0  
  forward-digits all  
  prefix 011  
!  
dial-peer voice 4 voip  
  destination-pattern 2221  
  session target ipv4:150.1.1.4
```

Final Relevant Configuration R4:

R4#**show running-config**

Building configuration...

Current configuration : 1775 bytes

```
!  
version 12.4  
service timestamps debug datetime msec  
service timestamps log datetime msec
```

```

no service password-encryption
!
hostname R4
!
!
!
!
voice translation-rule 1
rule 1 /^[2-9].....$/ /18005551111/ plan unknown national
rule 2 /^1.....$/ /18005552222/ plan unknown isdn
rule 3 /^011.+/ /&/ type unknown international
rule 4 reject /.*/
!
!
voice translation-profile PSTN-Translation
translate called 1
!
!
!
!
interface Serial0/1
description .Connected To R2 Serial 0/0
ip address 150.1.1.4 255.255.255.0
clock rate 800000
!
!
!
!
voice-port 3/0/0
!
voice-port 3/0/1
!
voice-port 3/1/0
!
voice-port 3/1/1
!
!
!
!
dial-peer voice 1 pots
destination-pattern 2221
port 3/0/0
!
dial-peer voice 2 voip
translation-profile outgoing PSTN-Translation
destination-pattern .T
session target ipv4:150.1.1.2

```

